

FORMATION OF NOTCHED GATE USING A MULTI-LAYER STACK

ABSTRACT

5 A field effect transistor device has a semiconductor substrate having a
predetermined impurity concentration of a first conductivity type. Impurity layers
of a second conductivity type are formed spaced apart at the main surface of the
semiconductor substrate. The impurity layers make up source/drain regions. A
region between the impurity layers defines a channel region. A notch-shaped
conductive layer is formed on the channel region. The notch-shaped conductive
10 layer has an upper layer section longer than a lower layer section. The upper and
lower layer sections are formed of at least two different materials, one being
silicon-germanium layer with varying germanium content. The material of the
lower layer section can be etched at a greater rate than the material of the upper
layer section during a common etching process.